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ABSTRACT

The purpose of this study was to determine whether motor inhibition, self-control, relationship with achievement model, dependency, self-concept, delay of gratification, and risk-taking constitute an achievement motivation construct for migrant preschool children. The subjects used to determine the relationship between the 7 traits and achievement motivation were 95 male and 100 female children between the ages of 3 years 9 months and 4 years 9 months. Most of the children in the study were Negro, with only 8 white children. Individual tests and observations by teachers and aides were the methods of measurement. A convergent-discriminant validation procedure was used for validating the 4 factors (cognition, self-control, relationship with achievement model, and dependency) which were established from the Pre-Kindergarten Scale through factor analysis. Convergent validities ranged from .53 to .28, while divergent validities ranged from .10 to .38. Multiple linear regression analysis was used to examine the relationship between the 7 motivational traits and achievement (as measured by the Cooperative Preschool Inventory). Separate analyses were conducted for boys and girls, and results of the study support this procedure of performing separate analyses for each sex. The research indicates that many of the same factors (self-concept, delay of gratification, self-control, and motor inhibition) which predict achievement for middle-class males also predict achievement for migrant preschool males. (LS)

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TRAITS RELATED TO ACHIEVEMENT MOTIVATION

IN

MIGRANT PRE-SCHOOL CHILDREN

Tim M. Flynn
Hazen A. Curtis
Garrett R. Foster

* * * * *

1. The study reported herein was conducted under an Agreement by and between the Florida State Department of Education and the Board of Regents of the University System of the State of Florida.

2. Funds were provided under Title I, Public Law 89-10, Elementary and Secondary Education Act, as amended by Public Law 89-750.

3. Eight of the basic instruments used in this study were experimentally developed by, and are the property of, the Educational Testing Service, Princeton, New Jersey.

* * * * *

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While this study could not have been conducted without the assistance acknowledged above and the assistance of many others, the principal investigators were solely responsible for its operation, and are responsible for its content.

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CHAPTER I

INTRODUCTION

Purpose

Education is the traditional means of social and economic advancement in this country. Unfortunately, disadvantaged children, who have the most to gain from academic advancement, do least well in school. This is partially due to the serious handicaps the disadvantaged child brings to school, such as retarded language development, lack of perceptual skills, and poor health due to lack of proper physical and health necessities. Another contributing cause for this lack of success in school is insufficient motivation to learn. While evidence relative to the motivational determinants of low level of academic achievement of the disadvantaged child has accumulated over the past few years, much more needs to be known.

At least three broad cultural and social influences are thought to affect the development of the child's motivation to learn. These are: (1) the cultural milieu into which the child is born, (2) the racial, religious, and ethnic background, and (3) the social-economic class to which his family belongs (Crandall, 1964). These factors are not

directly amenable to change through the educational system. The logical alternative, then is to focus on the educational system as a fourth major determinant of motivation to learn. The present study is based on the assumption that knowledge of the behavioral characteristics of high achieving migrant children will facilitate the design of instructional systems intended to foster achievement motivation in these children. In order to develop motivation to learn in the migrant child, the behaviors that operationally define the construct of achievement motivation in migrant children must be identified. Thus the purpose of the study reported here was to investigate a constellation of personality traits that were hypothesized to constitute an achievement motivation construct in migrant preschool children.

Hypothesis

The constellation of the following seven personality traits--motor inhibition, self control, relationship with achievement model, dependency, risk taking, self concept, and delay of gratification--constitutes an achievement motivation construct in migrant preschool children.

While these traits are not an exhaustive list of the traits associated with achievement motivation, they are a subset of those traits which have successfully discriminated between individuals possessing a strong achievement motive and those individuals possessing a weak achievement motive.

Deduced Consequence from the Hypothesis

1. If these seven traits constitute achievement motivation in migrant children, each trait will account for a significant amount of achievement variance independently of cognitive ability.

2. If these seven traits constitute achievement motivation in migrant children, then each trait in the presence of the remaining six traits will account for a significant amount of the child's achievement variance independently of cognition or the other traits.

Basis of Study

The theoretical basis for the selection of the seven traits was formulated mainly around the work of McClelland, Atkinson, Clark, and Lowell (1953). According to their theory, the achievement motive is a learned response that results in a generalized expectancy in which, under specific conditions, certain achievement oriented responses will be reinforced. The theory also postulates that individuals who possess this expectancy to be reinforced also possess certain personality traits that are conducive to achievement, including those previously listed. These relationships were supported by research which primarily studied a middle class population. Only meager results concerning traits which are associated with achievement motivation in a disadvantaged population are available.

Most definitions of achievement motivation agree that the kinds of situations which characteristically evoke achievement motivation, and in which achievement behaviors will ensue are those in which competence of performance behaviors are the main issue. The aim of achievement behavior differs from other behavioral constructs, such as aggression, is that the primary goal is to obtain positive reinforcement for demonstrated competence.

In the present study, the criterion of achievement behavior is demonstrated on an eighty-five item, preschool achievement test which was administered to subjects individually. This situation satisfies the above definition of achievement motivation in that the child's competence of performance is the focal issue in his reaction to the testing situation.

Need and Significance of the Study

The bulk of previous research with preschool children on determining personality correlates of achievement motivation have neither controlled for intelligence nor used an objective measure of intellectual achievement. The combination of these factors have resulted in research findings for which it is impossible to adequately determine whether the criterion variable is general intelligence or achievement motivation. Since academic achievement is regarded as the effect of a complex interaction of cognitive skills and

personality traits, it may well be that many traits thought related to achievement motivation are mainly functions of the preschool child's intellectual development.

Thus one of the objectives of this study was to determine whether certain traits found to be associated with achievement motivation in previous research are independent components of the child's motivational development. The study served a dual purpose in that it attempted to establish the validity of the achievement motivation construct for migrant preschool children (CA=3-9 to 4-9) and to provide specific information about observable behavior that will be useful in fostering achievement motivation in migrant preschool children.

CHAPTER II

REVIEW OF THE LITERATURE

While studies of achievement behavior have appeared with increasing frequency during the last two decades, the antecedents and behavioral correlates of achievement motivation have been studied using subjects who were mostly adolescent and elementary school children. For this reason, the research presented on preschool children is augmented with research using older children and adults. The review of the research attempts to build a framework within which achievement motivation in migrant preschool children can be examined. The first area reviewed relates various aspects of deprivation to achievement-related values and motives. The second area covered consists of evidence that supports the seven traits as components of the achievement motivation construct. Next, support for the consistency of the achievement motivation construct over time and across situations is reviewed. The final area covered relates to research supporting the analytical model that was used in this study in examining the relationship between the criterion of achievement motivation and the seven motivational traits.

Cultural Factors and Achievement Motivation

Much of the research and speculation reviewed in the area of deprivation and achievement motivation has been based on two implicit assumptions: (1) low motivation is synonymous with deprivation, and (2) lower class and Negro are synonymous with deprivation. The research alternative taken in the present study is one of focusing on the differences within the lower class level for specific aspects of behavior that discriminate between individuals who possess high achievement motivation and those individuals who lack this characteristic. Such differences will not reflect the effects of deprivation, but will be due to a different general orientation toward achievement. It is assumed that there is considerable variance in the migrant child's attitudes toward learning and that these attitudes are reflected in his behavior.

A number of studies have investigated various values, attitudes, beliefs, and behavioral characteristics which appear to be relevant to achievement motivation. Many of these have been found to be related to race and social status. Rosen (1959) found American Negroes to be relatively high on achievement values, but low on need for achievement. In a study by Gibby and Gabler (1968), Negro children scored higher than white children on rating their own intellectual ability when equated for IQ. The Negro children seemingly

over-rated themselves, whereas the white children seemingly were more realistic in rating their ability.

Personal efficacy, or belief in one's ability to influence his environment significantly, has been related to social status. At least two aspects of this have been investigated. The U.S. Office of Education (1966) reported a positive relationship between feelings of environmental control and academic achievement. McGhee and Crandall (1968) demonstrated a positive relationship between acceptance of intellectual achievement responsibility and academic achievement. Personal responsibility for intellectual achievement has been found to be greater for middle than for lower class children (Crandall, Katkovsky, & Crandall, 1965); however, no difference between Negro and white children have been found (Katz, 1967).

Ausubel and Ausubel (1963) and Hirsch (1965) have stressed the effects of deprivation on ego development and the support of such development as being essential to achievement. Further support for this position was provided by Lessing (1967). She found that eighth to eleventh-grade Negro students possessed less self-confidence in their ability to control their own destiny and less willingness to delay gratification for future goals than white working class high school students.

The trait self-concept in the present study is similar to the traits labeled personal efficacy and ego

development in the research reviewed above. Delay of gratification, which is being investigated in the present study, was found to differentiate lower from middle class subjects and white from Negro subjects. The occurrence of cultural differences on these traits suggests their inclusion in the construct of achievement motivation for migrant children.

Support for the Seven Traits as Components of the Construct Achievement Motivation

The characteristics of children who display more achievement behavior were studied through a longitudinal investigation (Sontag, Baker, & Nelson, 1958) based on standardized tests and ratings of children's behavior in nursery and elementary school, as well as in the home. It was determined that both boys and girls whose IQ's increased during the preschool years were independent of adults. The girls were also found to be able to delay gratification, until some distant time. During the elementary school years, both males and females whose IQ increased were again found to be independent, initiating more activities on their own, and more frequently attempting to overcome difficulties without help. The girls whose IQ's increased were also found to have the ability to delay immediate rewards for more long term benefits.

Mischel (1961) found a significant relationship between preference for immediate smaller, or delayed larger,

reinforcement in choice situation and "n" Achievement. His population consisted of 112 Trinidadian children between the ages of eleven to fourteen years. The preceding two studies provided support for the inclusion of dependency and delay of gratification as components of the construct of achievement motivation in the present study.

In seeming contrast to the Sontag, Baker, and Nelson study, a similar sample of high achieving nursery school children were found to be compliant to the nursery school teacher (Crandall, Orleans, Preston, & Rabson, 1958). A distinction between compliance and dependency, however, may provide the explanation for this apparent contradiction. In a longitudinal study involving gifted third grade students, Haggard and his colleagues (1957) found certain behavioral characteristics associated with superior achievement. The high achieving children were more responsive to socialization pressures and were striving to live up to adult expectations. However, they were less dependent upon their teacher and showed more initiative. Thus the high achieving child, while more independent than his low achieving peer, is more likely to identify with his teacher's values.

Haggard (1957) found that high achievers were better able to control their impulses than gifted children who were not achieving at such a high level. Results consistent with this were also found with nursery school children (Crandall, Orleans, Preston, & Rabson, 1958). These findings lend

support for the inclusion of dependency, relationship with achievement model, motor inhibition, and self control as components of the construct of achievement motivation.

Crandall, Katkovsky & Preston (1962) assessed the amount of time elementary school age children chose to spend in intellectual activities during free-play time while at a day camp. Boys who predicted their own success in intellectual activities spent more time in intellectual pursuits and did better on achievement measures than less confident boys. However, no relationship between self-confidence and achievement was found for the girls. This characteristic was investigated under the trait labeled "self concept" in the study reported here.

McClelland (1958) examined the relationship of "n" Achievement to risk taking in 26 children in kindergarten and 32 children in third grade. In both groups of subjects, individuals with high "n" Achievement tended to take moderate risks, while students with low "n" Achievement preferred either very safe or very speculative enterprises. In the present study this characteristic is measured by the trait "risk taking."

The relationship between the seven motivational traits and achievement motivation supported by the above findings was obtained from research designed differently from that of the current investigation. Two of the six studied used as their criterion "n" Achievement, a projective

personality device. Two of the studies reviewed used gain in IQ as the criterion of achievement motivation. Of the remaining two studies, one used amount of time engaged in achievement activity, and the other used actual achievement gain as the criterion for achievement motivation.

The criteria of gain in IQ and gain in achievement closely resemble the criterion used in the present study. Control for general intelligence was not crucial in Haggard's (1957) use of achievement gain, as he was using a homogeneous population in regard to general intelligence (gifted children). Support for a relationship between gain in IQ and "n" Achievement was provided by Kagen, Nelson, Baker, and Sontag (1958). They periodically administered a standard intelligence test to a group composed of the same children over a span of four years. Extreme groups were then selected from this sample--a group whose IQ decreased and a group whose IQ increased. Children whose IQ's increased during the period displayed more achievement themes to TAT pictures ("n" Achievement) than did children whose IQ's decreased. The authors concluded that their findings provide support for McClelland's use of "n" Achievement in the measurement of elementary school age children's achievement motivation. Thus, even though different criteria were used in the studies presented, they seem to be interrelated and to yield results consistent with the construct of achievement motivation.

Consistency of Achievement Motivation over Time and across Situations

The assumptions of the consistency of achievement motivation over time and across situations is crucial to the study of achievement motivation in preschool children. If there is no support for the consistency of achievement motivation, the results of this investigation will have limited usefulness. Crandall, Preston, and Rabson (1960) found that by nursery school age, children show some consistency across situations in their achievement strivings. Children who frequently initiated achievement efforts at home displayed similiar behavior during nursery school free play. These findings are based on behavior ratings that indicate a modest, but significant relationship between behavior observed at home and at school.

Crandall (1963) found that early grade school children's achievement orientations were consistent across intellectual, athletic, artistic, and mechanical activities. This was also true of the child's standards. The child who had high standards in one area was quite likely to have high standards in other areas. However, the child's actual achievement efforts were much more related to the achievement ability under consideration.

Equally important as consistency of behavior across situations is the stability of achievement behavior over time.

Results of the Feld Longitudinal Study provide some information pertaining to this variable (Kagan & Moss, 1962). The overall findings of the Feld Study suggest some significant consistency between childhood and early adulthood ratings of achievement behavior. Children who were rated as showing strong desires for recognition also tended to be rated as more concerned with excellence and with attainment of high self imposed standards when they were interviewed as young adults. Some of the many correlations between achievement striving in childhood and comparable adult pre-occupation with attaining excellence were high, in several instances reaching the .60 to .70 range.

Feld (1967) did a follow-up of a sample of children who were originally used in the Winterbottom study (1958). Winterbottom assessed the children's "n" Achievement (boys only) when eight, nine or ten years of age. Feld retested these same subjects six years later and obtained a .38 correlation between the original "n" Achievement scores and the retested "n" Achievement scores.

Research Relating to Design

The design of the present study is based on several assumptions that require research support. The first assumption is that an additive relationship exists between cognition and achievement motivation in predicting academic achievement. This is supported by McBee & Duke (1960) and Blanton & Peck (1964).

McBee & Duke (1960) studied the relationship between scholastic motivation and intelligence and their combined effect on academic achievement. Analyzing the data for 180 subjects by means of a 3 by 3 factorial design, they found significant differences in achievement which they attributed to differences in scholastic motivation. The relationship between intelligence and motivation was found to be additive in nature.

Blanton & Peck (1964) attempted to identify and assess motivational and personality factors affecting academic performance. The criterion measure was the number of grade points earned during one semester. Measures of motivation, and attitudes were related to the criterion measures, with the multiple correlations obtained of .74 and .57 respectively by the two studies presented.

The decision to analyze the results of each sex separately is based on the assumption supported by Sears (1962). She reported that needs other than "n" Achievement can be operative in females. They assessed elementary school children's needs for achievement and for affection. Their results indicated that the more "n" Achievement boys had about school situation, the more proficient were their performances on standard academic achievement tests. However, this was not true for the girls. Their concern with obtaining affection from others was predictive of their academic achievement.

Bruner and Cavon's (1959) findings provide support for the assumption that the present research design produces results equivalent to McClelland's TAT procedure. They administered Wechsler Intelligence Scale for Children to 64 middle class sixty-grade subjects. The subjects' school grades were converted into standard scores, and the discrepancy scores between the two distributions were examined. The seven boys with the greatest discrepancy between IQ and school performance whose performance exceeded IQ were designated over-achievers; the seven boys in the opposite direction were designated as under-achievers. The children were administered several measures including McClelland's TAT, Sarason's Anxiety Tests, and some memory procedures intended to measure the efficiency of retention for achievement-related material in contrast to neutral material. The results indicated that high achieving boys scored higher on TAT achievement than underachieving boys, tended to recall achievement related words sooner, had less memory interference for achievement-related word responses, and expended more effort to solve problems in competitive situations. Thus use of either McClelland's TAT procedure, or the criterion measure used in the present study, are assumed to provide similar results.

CHAPTER III

METHOD AND PROCEDURES

Design Rationale

The present study was concerned with academic achievement. For this reason, a more specific measure than "n" Achievement, which is a global measure, was considered more appropriate as the criterion variable. In order to construct a more specific measure of achievement motivation, it was necessary to break achievement into its basic components. The components thought to account for an individual's score on an achievement measure are presented on Equation 1.

1. Achievement = Achievement motivation + innate ability + specific prior knowledge + socio-economic background + systematic error due to unknown factors + variance due to measurement error

To simplify this equation, the constructs innate ability and specific prior knowledge were combined under the construct of cognition. The construct socio-economic background was dropped from the equation since little specific variance should exist as all subjects in the study came from migrant families. The specific variance due to unknown factors was combined with measurement error to form the error term. Equation 2 represents the reduced components of achievement.

2. Achievement = Achievement motivation + Cognition + Error

Rationale for the Criterion Measure of Achievement Motivation

The Cooperative Preschool Inventory (CPI), a measure of preschool achievement, was used in this study as the dependent variable. However, a measure of the child's cognitive skills was used as a covariate on the logic that with the removal of the variance on the CPI due to cognitive skills, the remaining systematic variance would be largely due to achievement motivation.

The postulated relationships between the dependent and independent variables are illustrated by Figure 1.

The largest circle in Figure 1 represents the construct achievement, with the shaded portion of the circle representing achievement due to motivation. The unshaded inner circle represents achievement due to cognition. The seven motivational traits are represented by seven overlapping circles to indicate that these traits are not considered to be completely independent, but covary with each other and with the construct cognition. The area covered by lines represents error. To represent traits not included in the study but which are components of the achievement motivation construct a portion of the shaded area is not overlapped by circles.

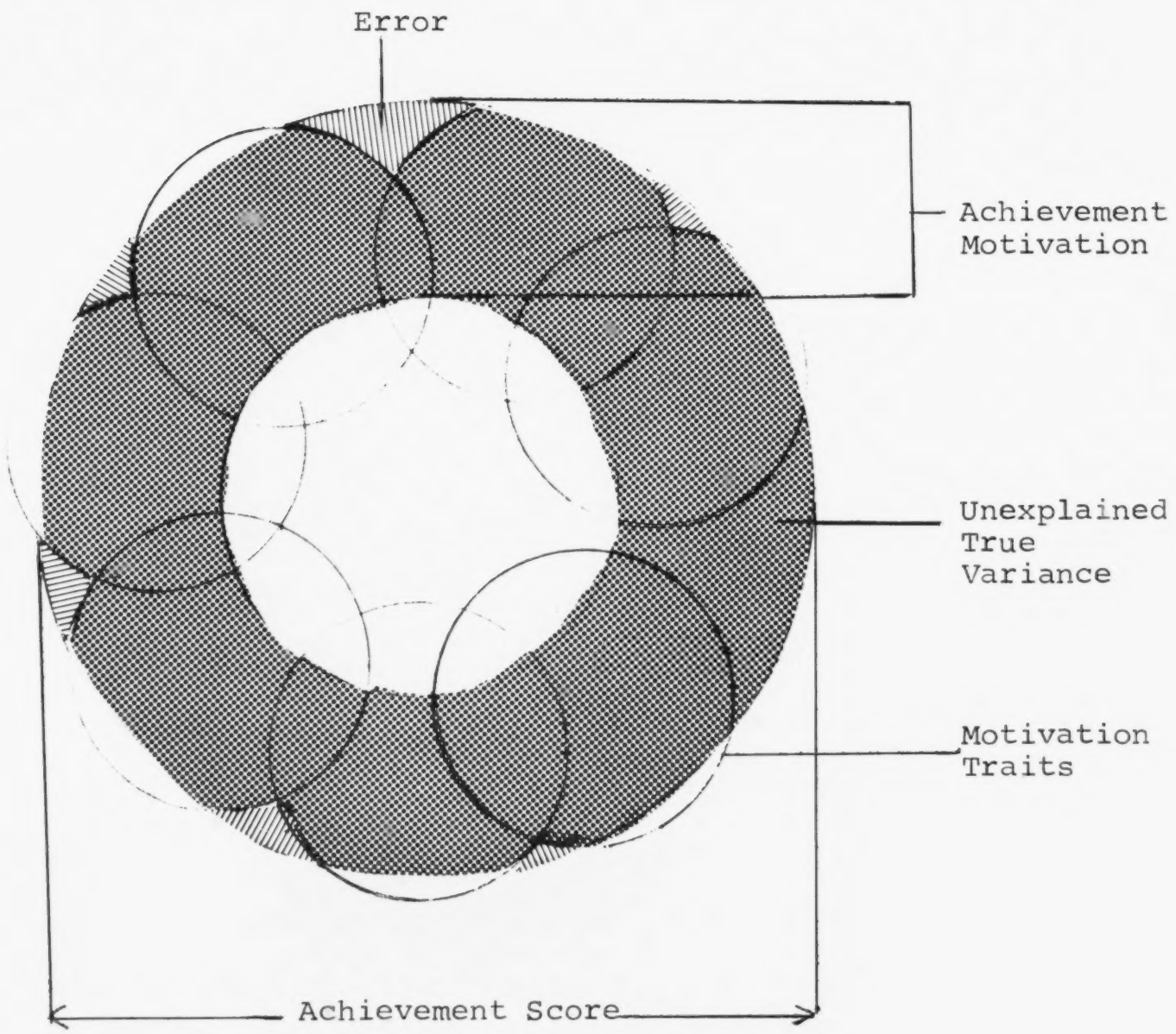

Fig. 1.--Model of the Achievement Motivation Construct

This approach to measuring the construct of achievement motivation has several advantages over the use of "n" Achievement. The most important advantage is that "n" Achievement measures (TAT responses) are not practical for preschool age children due to the verbal proficiency required for successful use of this technique. It was also hypothesized that the use of achievement behavior rather than an abstract measure of achievement motivation, such as "n" Achievement, would provide a more reliable and valid measure of achievement motivation.

Sample

The children used in this study were migrant children between the ages of 3 years 9 months and 4 years 9 months. These children were attending a program of compensatory education instituted by the Florida State Department of Education. The program operated from sixty-one classroom trailers in central and south Florida. Those children who were included in the present study were from randomly selected trailers in two south Florida counties. Included in the analysis to determine the traits related to achievement motivation were 106 children selected from one county (57 girls, 49 boys), and 89 children (43 girls, 46 boys) selected from the other county. Of this total population of 195 children, 187 were Negro, and the remaining 8 were white. The Negro migrants are from the Southeastern United States, and the

whites are of Appalachian origins. The Spanish American children who were also attending the program were excluded from this study since the individual tests that were administered were in English and not appropriate for these children.

To validate the Pre-Kindergarten Scale, the ratings of 89 of the total sample were combined with the rating of an additional 208 migrant children.

Instruments

Pre-Kindergarten Scale

In an attempt to measure the migrant child's adjustment as evidenced in the preschool program, the Pre-Kindergarten Scale was constructed by the author. The instrument was designed to take advantage of the daily observations of the teachers and teacher aides who worked directly with the children on a day-to-day basis. Since the aides were selected from the migrant population and possessed limited educational backgrounds, it was necessary that the language on the scale be relatively simple. In order to simplify the rating procedure further, a multiple choice behavioral observation scale was constructed with four alternative behaviors and a "have not observed" response for each situation presented. To rate a child, the teacher or aide selected the behavior that best described the child in the presented situation. The following item from the scale illustrates the format:

When exposed to a new situation such as field trips, new games, or strangers, etc., this child:

1. is very curious and asks many questions.
2. shows some curiosity and asks some questions.
3. has limited curiosity which is easily satisfied.
4. shows no curiosity.
5. have not observed.

The multiple choice format used in the Pre-Kindergarten Scale has several advantages over the conventional rating procedure which asks the teacher to apply such subjective terms as Good, Fair, or Poor to such general traits as cooperativeness. The objectivity of the rating is increased by not attempting to rate the internal states of the child. Also, since the observer is provided with both the situation and the behavioral responses that could occur in the situation, it is not necessary to use personal referents to describe the child. The situations presented on the scale occur frequently enough in the pre-kindergarten program to provide sufficient samples of the child's behavior for satisfactory rater agreement.

The teachers and the aides were trained in the use of the scale prior to the beginning of the pre-kindergarten program. Also after classes had begun, the teachers and aides were visited by the author in order to give additional training. Conversations with the teachers and aides during this training indicated that they possessed adequate understanding of the rating procedures.

The areas of behavior measured by the Pre-Kindergarten Scale were defined by a principal component factor analysis of the ratings of 144 migrant children by their teachers and two teacher aides. These children were not included in the regression analysis to determine the traits related to achievement motivation.

The following four factors were derived: (1) cognition, (2) self control, (3) relationship with achievement model, and (4) dependency. The four factor coefficients obtained for each item through this factor analysis were then applied to a new sample consisting of ratings of 153 migrant children by the teacher and the two teacher aides in order to determine the generality of the weights.

The use of three raters (teacher, morning aide, and afternoon aide) made it possible to adapt the Campbell and Fiske's (1959) convergent-discriminant validation procedure for validating the four factors. The procedure was adapted by substituting the different observers for the different methods. Since there were three observers, three multi-trait, multi-rater correlation matrices were constructed. Table 1 presents the three multi-trait, multi-rater correlation matrices based on the ratings of the 153 children with each item response multiplied by the four factor coefficients previously obtained on the sample of 144.

TABLE 1

MULTI-TRAIT MULTI-RATER CORRELATION MATRICES
(N=153)

		Cognitive Skills	Self Control	Relationship with Achievement Model	Dependency
Multi-trait Multi-rater Correlation Matrix 1--Teacher					
Aide 1	CS	.51	.00	.29	.19
	SC	-.03	.47	.01	-.04
	RAM	.38	.05	.53	.12
	D	.16	.16	.20	.28
Multi-trait Multi-rater Correlation Matrix 2--Teacher					
Aide 2	CS	.42	-.05	.36	.03
	SC	.01	.57	.13	.06
	RAM	.25	.06	.46	.01
	D	.27	.03	.13	.28
Multi-trait Multi-rater Correlation Matrix 3--Aide 2					
Aide 1	CS	.32	-.11	.26	.03
	SC	-.19	.44	.10	.17
	RAM	.08	.03	.53	.21
	D	.07	-.09	.30	.33

In general, to establish a minimal degree of validity by using this procedure, it is necessary to demonstrate that the correlations between two different raters (methods) measuring the same trait are higher than the correlations between unlike traits which were measured by the same or

different raters (methods). This relationship is best demonstrated by examining the validity diagonal of the correlation matrix. In all three of the matrices, the correlations on the validity diagonal are higher than the remaining row and column correlations for a given diagonal cell. However, the factor of dependency seems to present less convincing evidence of convergent validity than the remaining three factors.

To establish discriminant validity, it is necessary that the ratings by the same observer of different traits not be highly correlated. Some weakness in the three matrices are noted, as the intercorrelations between cognitive skills and relationship with achievement model are of substantial size. Outside of this apparent weakness, the remaining intercorrelations are relatively low. These results indicate that the four factors possess sufficient convergent and discriminant validity for use as separate variables in the analysis.

The factors of self control, dependency, and relationship with achievement model were used in the study as independent variables. The cognition factor was combined with three individual tests to form a measure of cognition which was used as a covariate in the study. It was thought that by combining two types of measures of cognition, individual tests and behavioral ratings, a more general measure of the construct of cognition would be obtained. A composite score for each factor was used, consisting of the ratings of the teacher and

the two teacher aides. A copy of the Pre-Kindergarten Scale, with the factor coefficients for each item are included in Appendix A.

Individual Tests

The information available on the individually administered measures developed by ETS is limited. It does indicate that they have been used in pilot projects with success and that they are currently being used in a longitudinal study by ETS (Anderson, 1968). Validity and reliability on these measures was to be released by ETS in the spring of 1970; however, this information still remains unavailable at the time of this writing.

A brief description of each of the measures follows under the name of the trait presumably measured. The measures were experimentally developed by the Educational Testing Service of Princeton, New Jersey, and were used with their permission. These investigators feel that they should refrain from the publication of the instruments, but will respond to direct requests for information. It is suggested that requests for copies of the instruments be directed to the Educational Testing Service.

Cognition

ETS Matched Pictures Comprehension Task measures listening, recognition of word and sentence properties. This measure was developed to meet the need for a series of syntactically structured tasks which would require minimal responses from the child (i.e., pointing). The tasks consist of a "Matched Picture" presentation of 20 cards containing

pairs of stimulus pictures. Both pictures contain similar elements, but they depict different relationships.

ETS Story Sequence Task, Part II measures speaking, retelling, comprehension, and creative speech. The test materials consist of two sets (3 and 4 cards each) of cartoon style sequences using animals as characters. The examiner tells the subject to listen carefully to the story because the subject is to repeat the same story. The subject's version of the story is recorded on tape for later scoring and interpretation.

Matching Familiar Figures measures the child's reflection-impulsivity tendencies. Subject is shown a set of four pictures, then a single standard. His task is to identify the one comparison figure among the four that is identical to the standard.

Delay of Gratification

Mischel Technique measures ability to delay gratification. Subject is shown two rewards (candy) and is told that he can have the smaller one now or the larger one at some later period (specified by the Examiner). He is asked whether he wishes the smaller or the larger of the two items.

Risk Taking

Risk Taking measures the subject's risk taking tendencies. The first task consiste of showing the child two bags, the child looks into the bag, and sees a toy (car) in

it. He is told that the other bag may be empty or may have five toys in it. The child is then asked if he would rather have the car, or the other bag. If he selects the bag, then the game is over. If the child selects the car, then he is shown the contents of the bag and asked to choose another bag. The same choice is presented to the child. If he selects the bag when first asked, he receives two points; however, if he selects the bag the second time, then he receives one point.

Self Concept

Brown IDS Self-Concept Referents Test measures the child's perception of self. The procedure involves taking a photograph of each subject to use in asking the subject questions about his picture. Each positive response receives a score of one; each negative response receives a score of zero. The questions ask whether the child in the picture is "happy," "clean," "ugly," "talks a lot," "good," "scared," and so forth.

Motor Inhibition

Motor inhibition measures impulsivity. The child performs two motor acts, drawing a line between two points and walking a distance of six feet. He practices each act and then is timed as he performs it as slowly as he can. The Motor Inhibition Ability Test was introduced by Maccoby, Dowley, Hagen, and Degerman (1965).

Dependent Variable

Cooperative Preschool Inventory (CPI) measures general knowledge, listening for word meaning and comprehension, writing (form copying), speaking, and quantitative skills. The CPI was designed as an assessment procedure for use in individual testing of children age three to six (Caldwell, 1967). The CPI consists of 85 items which were selected on the basis of a principal components factor analysis. Williams and Stewart (1968) reported a reliability of .93 (coefficient Alpha) for a sample of 445 children attending a summer Head Start Program. The author obtained a coefficient Alpha reliability of .88 for the CPI administered to 191 of the 195 migrant children included in the present study.

Collection of Data

The data used in the study was collected by the Florida State University Evaluation Staff of which this author was a member. This staff developed an evaluation model to be used in evaluating the migrant preschool program. The constructed evaluation model was centered around four sources of data: (1) behavioral evaluation of each child on the Pre-Kindergarten Scale by teachers and aides once every month; (2) a series of thirteen individual measures of language, intellectual achievement, and personal-social development; (3) video tape recordings of classroom activities; and (4) health service records.

The design of the present study required the use of the initial measures on the Pre-Kindergarten Scale and on eight of the thirteen individual measures.

Individual Test Results

Psychometrists were selected from the locality where the testing was to occur and were given training in the administration of the individual measures by members of the evaluation staff. There were two psychometrists for each of the mobile testing vans used in the test administration. Each of the counties included in this study had a mobile testing van. The four psychometrists were females, three Negroes and one white.

The sequence of test administrations and a brief description of each test with the time required for administration are presented in Table 2. The individual test data were mailed back to Florida State University for scoring and interpretation.

Pre-Kindergarten Scale

The Pre-Kindergarten Scale was completed by the teacher and the teacher aides. The teachers and aides rated each child independently, as it was stressed in the training of the raters that their own observations of the child were desired. The scale was not completed as the behavior happaned; the observer was asked to recall the child's usual behavior in that situation. The ratings were recorded on

TABLE 2

INDIVIDUAL TESTING SCHEDULE

Name of Instrument	Variable(s) Measured	Approx. Testing Time (Min.)
A. SESSION I:		
1. ETS Matched Pictures Comprehension Task*	Listening: recognition of word properties; recognition of sentence properties	10
2. MISCHEL Delayed Reward*	Ability to delay gratification	2 - 5
3. Matching Familiar Figures*	Reflection--impulsivity response style	10
4. Sex Role Consistancy	Conservation of sex identification	5 - 10
		27 - 35
TEN MINUTE BREAK		
5. Children's Auditory Discrimination Index (CADI - STERM)	Auditory Discrimination	10
6. Motor Inhibition*	Ability to control motor impulsivity	5
7. Mimicry (Taped)	Ability to reproduce sounds	10 - 20
8. ETS Story Sequence Task I*	Listening: sequential recall, comprehension	5 - 10
9. SEGUIN Form Board	Form discrimination--eye-hand motor co-ordination	5
10. BROWN IDS Self-Concept Referents Test*	Self-concept and others' concept of self	15

TABLE 2--Continued

Name of Instrument	Variable(s) Measured	Approx. Testing Time (Min.)
11. HEAD START RATING SHEET	Test-taking behaviors (prepared by tester)	0
		50 - 65
SESSION I TOTAL TEST TIME:	77-100 MINUTES (PLUS BREAK TIME)	
B. SESSION II:		
12. Cooperative Preschool Inventory (CALDWELL)*	General Knowledge Listening: word meaning comprehension form copying Quantitative Labeling	20
13. Risk-Taking Tasks II*	Risk-taking--feeling of competence	5
SESSION II TOTAL TEST TIME:	25 MINUTES	
TOTAL TEST TIME EACH CHILD, BOTH SESSIONS:	102-125 MINUTES	

*Included in study.

IBM machine-scorable answer sheets. The average time reported for completion of a rating was approximately fifteen minutes. After completion of the ratings, they were sent to Florida State University for scoring and interpretation.

Statistical Procedure

Multiple linear regression analysis (Bottenberg & Ward, 1963) was the statistical technique used to examine the relationship between the seven motivational traits and the criterion measure. The sample was divided according to sex for the analyses. This resulted in two separate analyses in which the procedures described below were applied.

The first analysis undertaken was to determine the relationship between each trait and the criterion independently. It also was used to determine whether a linear or a curvilinear relationship existed between the trait and the achievement motivation criteria.

The following equations demonstrate the procedure used.

Y=CPI

U=unit vector

X_1=Cognitive Skills

X_2=Traits

E=Error

(1) $Y=a_0U+a_1X_1+a_2X_2+a_2X_2^2+E$

(2) $Y=a_0U+a_1X_1+a_2X_2+E$

(3) $Y=a_0U+a_1X_1+E$

The difference between the multiple R^2's obtained on equations 1 and 2 were tested for significance by the F-ratio statistic (Guilford, 1965). It takes the following form in this case:

$$F\frac{(R_1^2-R^2{}_2)(N-m_1-1)}{(1-R_1^2)(m_1-m_2)}$$

where: R_1 is the multiple R with the larger set of precictors,
R_2 is the multiple R with the smaller set of predictors,
m_1 is the number of variables in the larger set,
m_2 is the number of variables in the smaller set,
N^2 is the number of cases in the sample.

For testing the significance of the observed F_1, df_1 is given by (m_1-m_2) and df_2 is given by the term $(N-m_1-1)$. A significant F at the .05 level will lead to the rejection of the null hypothesis that the motivational characteristics contribute to the prediction of achievement independently of ability level. A significant F ratio for equations 1 and 2 would imply a curvilinear relationship. If the F ratio for equation 1 and 2 was insignificant, indicating the absence of a parabolic function, equation 2 and 3 were compared to determine whether the trait was linearly related to the criterion.

In order to test the second deduced consequence of the hypothesis, an equation with all eight independent variables (the eighth variable being cognitive skill which serves as a concomittant variable) would be included.

Y=Achievement on CPI
X_1=Cognitive Skills
X_2=Dependency
X_3=Self Control
X_4=Delay of gratification
X_5=Risk taking
X_6=Self-concept
X_7=Relationship with achievement model
X_8=Motor inhibition

(6) $Y=a_0U+a_1X_1+a_2X_2+a_3X_3+a_4X_4+a_5X_5+a_6X_6+a_7X_7+a_8X_8+E$

(7) $Y=a_0U+a_1X_1+a_3X_3+a_4X_4+a_5X_5+a_6X_6+a_7X_7+a_8X_8+E$

Equation seven demonstrates the deletion of Dependency in order to test its unique or independent contribution to the full model. Dependency would be replaced in the full model whether or not it was significant. The procedure used required the full model to be tested against a model which was minus only one variable. This procedure was followed in order to illuminate the effect of order on the testing of variables. Thus instead of testing each variable against a full model which was changing as variables were found to be insignificant, the same full model was used for all the variables.

The variables that were found to be significant in the above procedure were then included in a restricted regression equation. These significant variables then were tested against this restricted model to determine their significance when acting in conjunction with one another.

CHAPTER IV

FINDINGS

In the presentation of the results, the additive nature of the motivational traits to achievement are examined by reporting the percentage of variance beyond that accounted for by cognition in predicting achievement. The means and standard deviations obtained on the nine measures obtained for both sexes are included in Appendix B. As stated in the statistical analysis, all variables in both the male and female analyses were examined for a possible curvilinear relationship with the criterion. In all instances, the curvilinear form of the relationship failed to provide a significantly better fit than the linear form.

Findings for Girls

The results relative to the first deduced consequence of the research hypothesis are presented in Table 3 for the girls. Briefly, the first consequence states that if the seven traits constitute the achievement motivation construct in migrant children each trait will independently predict the child's level of achievement when acting in the presence of cognition. Thus Table 3 presents the percentage of achievement

TABLE 3

UNIQUE ACHIEVEMENT (CPI) VARIANCE ACCOUNTED FOR BY EACH TRAIT ACTING IN THE PRESENCE OF COGNITION FOR MIGRANT GIRLS (N=100)

Trait	Percentage of Variance Added
Motor Inhibition	.23
Self-Control	1.21
Relationship with Achievement Model	.40
Dependency	1.35
Self-Concept	4.71*
Delay of Gratification	1.77
Risk Taking	6.16**

*Significant at .05 level

**Significant at .01 level

variance accounted for by each motivational trait in the presence of a measure of cognition.

It is evident that only self-concept and risk taking account for a significant percentage of the achievement variance independently of cognition.

The second consequence of the research hypothesis states that each trait in the presence of the remaining six motivational traits and cognition will independently predict achievement if the research hypothesis is correct.

The results of this analysis for the girls are presented in Table 4. Again the only traits that accounted for

TABLE 4

UNIQUE ACHIEVEMENT (CPI) VARIANCE ACCOUNTED FOR BY EACH TRAIT ACTING IN THE PRESENCE OF COGNITION AND THE OTHER SIX MOTIVATIONAL TRAITS FOR MIGRANT GIRLS (N=100)

Trait	Percentage of Variance Added
Motor Inhibition	.01
Self-Control	.29
Relationship with Achievement Model	.01
Dependency	1.58
Self-Concept	3.10*
Delay of Gratification	.39
Risk Taking	4.91*

*Significant at .05 level

a significant percentage of the variance were self-concept and risk taking.

Equation 8 presents the R^2 and standard beta weights for cognition (C), self-concept (S), and risk taking (R) in predicting achievement. The upper case letters used in the equation represent the validity coefficients of the traits, which can be found in Table 5.

Equation 8:

$$.34=.47C+.20S+.23R$$

In this equation self-concept (S) accounts for approximately 4 per cent of the variance while risk taking accounts for less than 5 per cent of the variance. However

TABLE 5

CORRELATION MATRIX FOR GIRLS (N=100)

	C	M	SC	RAM	D	S	G	R	CPI
Cognition (C)	1.00								
Motor Inhibition (M)	.18	1.00							
Self Control (SC)	.09	.18	1.00						
Relationship with Achievement Model (RAM)	.13	.09	.06	1.00					
Dependency (D)	.22*	.13	.08	.08	1.00				
Self-Concept (S)	.27**	.21*	.09	.12	.05	1.00			
Delay of Gratification (G)[a]	-.16	.27**	.15	.06	.00	.11	1.00		
Risk Taking (R)	-.12	-.15	.16	-.04	.08	.02	.10	1.00	
Cooperative Preschool Inventory (CPI)	.50**	.13	.15	.07	.01	.33**	.03	.18	1.00

*Significant at .05 level

**Significant at .01 level

[a]Point biserial correlation

this is a conservative estimate of the percentage of variance due to these two motivational traits since these traits are also likely to be components of the cognition construct. Equation 9 gives the R^2 and the standard beta weights of self-concept (S), and risk taking (R) without cognition in predicting achievement.

Equation 9:

$$.14=.33S+.17R$$

This equation represents the maximum amount of variance that could be credited to these two traits in accounting for achievement variance.

Table 5 presents the intercorrelations for the girls on all the variables included in the study. It is interesting to note that while dependency was significantly related to cognition, it has a near zero (r=.01) correlation with achievement. This implies that the dependent girl has a tendency to perform poorly on cognitive tasks, but her dependency does not relate to her score on the achievement criterion (CPI).

Findings for Boys

The results of analysis of the first congruence for the boys are presented in Table 6. In contrast with the findings for the girls the traits of motor inhibition, self control and delay of gratification account for a significant percentage for the boys. The only similarity is the significant finding of self-concept for both the boys

TABLE 6

UNIQUE ACHIEVEMENT (CPI) VARIANCE ACCOUNTED FOR BY EACH TRAIT IN THE PRESENCE OF COGNITION FOR MIGRANT BOYS (N=95)

Trait	Percentage of Variance
Motor Inhibition	7.25**
Self Control	5.53**
Relationship with Achievement Model	.00
Dependency	.80
Self-Concept	11.03**
Delay of Gratification	3.52*
Risk Taking	.49

*Significant at .05 level

**Significant at .01 level

and the girls. However, even this similarity emphasized the difference between the sexes. The percentage of variance accounted for by self-concept for the boys was over twice as large as that accounted for by the girls (11.03 to 4.17 percent).

This sex difference is also apparent when the analysis of the results of the second consequence is examined for the boys. The results of this analysis is presented in Table 7

The motivational traits that account for a significant percentage of the variance in the presence of cognition also account for a significant percentage of the variance when

acting in the presence of cognition and the six other motivational traits.

These traits were tested for significance in a modified full regression equation consisting of the four traits and cognition in predicting achievement.

Equation 10 represents the R^2 and the standard beta weights for cognition (C), motor inhibition (M), self control (SC), self-concept (S), and delay of gratification (G) for migrant boys. Again, the upper case letters in the equation represents the validity coefficients and can be found in Table 9.

Equation 10:

.48=.41C+.16M+.15SC+.26S+.16G

All four motivational traits account for a significant portion of the variance in Equation 10. The percentage of variance accounted for by each of the four traits with their F ratios and degrees of freedom are presented in Table 8.

The maximum amount of achievement variance that could be attributed to the four traits is demonstrated by Equation 11.

Equation 11:

.33=.26M+.19SC+.33S+.12G

Thus the maximum amount of achievement variance that could be explained by the four traits is 33 per cent.

TABLE 7

UNIQUE ACHIEVEMENT (CPI) VARIANCE ACCOUNTED FOR BY EACH TRAIT ACTING IN THE PRESENCE OF COGNITION AND THE OTHER SIX MOTIVATIONAL TRAITS FOR MIGRANT BOYS (N=95)

Trait	Percentage of Variance
Motor Inhibition	2.24*
Self Control	3.25*
Relationship with Achievement Model	.03
Dependency	.00
Self-Concept	5.67**
Delay of Gratification	2.26*
Risk Taking	.07

*Significant at the .05 level

**Significant at the .01 level

TABLE 8

UNIQUE ACHIEVEMENT (CPI) VARIANCE ACCOUNTED FOR BY THE SIGNIFICANT MOTIVATIONAL TRAITS FOR MIGRANT BOYS (N=95)

Trait	Percentage of Variance	F	Degrees of Freedom
Motor Inhibition	2.2	4.04	1,89
Self Control	3.3	6.00	1,89
Self-Concept	5.7	10.13	1,89
Delay of Gratification	2.2	4.04	1,89

The percentage of variance explained by the motivational traits for the boys was considerably larger than that for the girls. The variance for each sex accounted for by cognition was approximately equal (25 percent for girls, 27 percent for boys). While significant traits account for an additional 21 per cent of the variance for the boys, but only an additional 9 per cent for the girls.

Table 9 presents the intercorrelations for the boys of all the variables included in the study. The correlations of dependency and risk taking with the CPI achievement measure were significant, but because they were also significantly related to cognition this relationship was weakened with the removal of achievement variance due to cognition.

TABLE 9

CORRELATION MATRIX FOR BOYS

	C	M	SC	RAM	D	S	G	R	CPI
Cognition	1.00								
Motor Inhibition (M)	.27*	1.00							
Self Control (SC)	.04	.18	1.00						
Relationship with Achievement Model (RAM)	.25*	.08	.11	1.00					
Dependency (D)	.33**	.18	.26	.20	1.00				
Self-Concept (S)	.25*	.26	.19	.06	.19	1.00			
Delay of Gratification (G)[a]	-.02	-.18	-.16	.01	.02	.12	1.00		
Risk Taking (R)	.29**	.19	.22	.09	.08	.16	.06	1.00	
Cooperative Preschool Inventory (CPI)	.53**	.40**	.28**	.14	.26**	.45**	.18	.22*	1.00

*Significant at the .05 level

**Significant at the .01 level

[a]Point biserial correlation

CHAPTER V

DISCUSSION OF FINDINGS

Achievement Motivation Model for Girls

It was not possible to adequately display the achievement motivation construct with one mode. Thus a separate model for each sex was constructed. The model for the girls is presented in Figure 2. The unique variance for each trait is represented by the shaded portion of each small circle. The overlapping narrow cross shaded portion of each circle represents the shared variance of the traits. For the girls the shared variance accounts for approximately 1 per cent while the unique variance accounts for approximately 8 per cent of the variance. The fine lined portion of the circle represents the error term. The percentage of error variance was derived from a coefficient Alpha of .88 which was obtained for the CPI through administration to 191 of the 195 migrant children included in the present study. True achievement variance left unexplained is represented by the shaded portion of Figure 2 not included in either trait's unique variance.

According to the model, 44 per cent of the true achievement variance remains unexplained. Sears (1962)

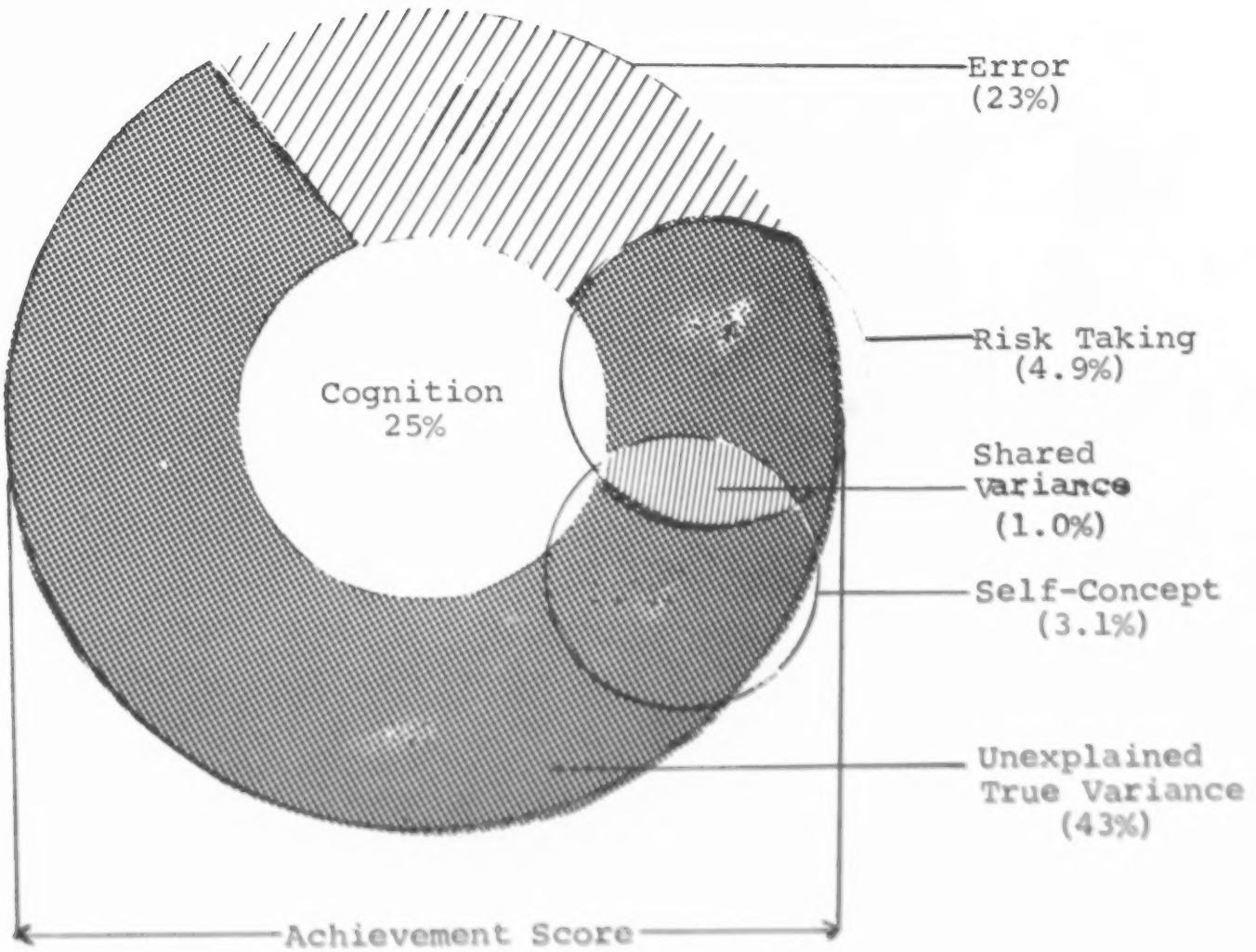

Fig. 2.--Girls' Model of Achievement Motivation

provided support for the inclusion of "need for affection" in the achievement motivation model for girls. Other similar traits should be investigated to determine if they may account for some of the remaining 44 per cent of unexplained variance. However, the present achievement motivation model for girls supports McClelland's, et al. (1953) who because of similar results limited his theory of achievement motivation to males.

Achievement Motivation Model for Boys

The model constructed for boys to represent the achievement motivation construct is presented in Figure 3. The percentage of unique variance accounted for by each trait is indicated by the shaded portion of each overlapping circle. Approximately 7 per cent of the variance is accounted for by the shared variance of the traits. The fine lined portion of the model represents this variance. The remaining variance is divided between cognition, error, and true achievement variance. Thus according to this model, only 29 per cent of the true achievement variance remains to be explained.

These findings indicate that for male migrant children a promising beginning in determining the components of the achievement motivation construct has been provided. These findings also support the use of McClelland's, et al. theory of achievement motivation with male migrant children.

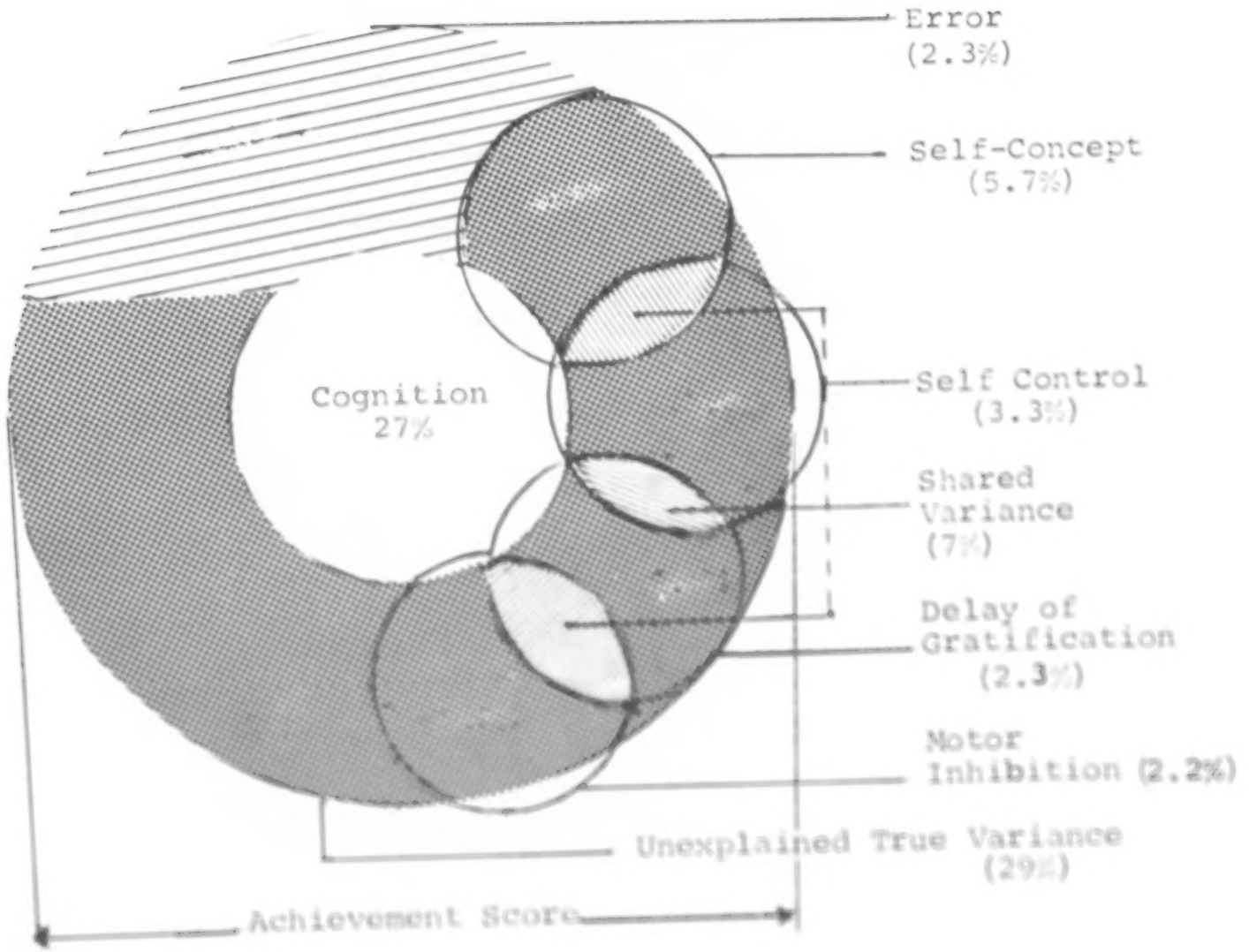

Fig. 3.--Boyd's Model of Achievement Motivation

Comparisons of Figure 2 and Figure 3 demonstrate the different role these traits play in promoting achievement for each sex. Self-concept accounts for a larger percentage of the variance for the boys than it does for the girls. One factor that may explain this higher percentage of variance is that boys seem to evaluate their own abilities and performances more realistically than girls (Crandal, 1962). Thus their self-concept would be more closely related to their actual achievement performance than it would be for the girls.

Risk taking, while a component of the construct of achievement motivation for girls, was not found to be a component of achievement motivation for boys. On the other hand, delay of gratification was a significant component for the boys, but not for the girls. This finding is consistent with results provided by Murphy (1962) who reported that for boys a measure of "coping" is correlated with "the ability to balance gratification and frustration" (which may be taken to be a measure of delay of gratification); for girls these two variables were not correlated. Siegel (1964) reported a study of four-to five-year-old children in which cautiousness was negatively related to an achievement measure for girls, but positively correlated for boys.

The difference found for motor inhibition and self control as components of achievement motivation for boys, but not for girls, stresses the importance of impulse control

for achievement in boys. A longitudinal study by Kagan and Moss (1962) has some bearing on this finding. They reported that measures of hyperkinesis (high levels of undirected activity during childhood) correlates negatively with adult intellectual interests for men, while this correlation is slightly positive for women. It appears from this and the present study that traits such as delay of gratification, self control, and motor inhibition are significantly related to boys' achievement, but they have little relationship to girls' achievement.

Implications for Future Research

Support for the validity of the research approach of focusing within the lower social class (children of migrant workers) for specific aspects of behavior that discriminate between children who possess achievement motivation and those who lack this characteristic has been provided by the findings of the present study. In a cross cultural study, Lessing (1967) found that self-concept and delay of gratification discriminated between Negro and white male working class students. These traits in the present study discriminated between male migrant children who possessed achievement motivation and those that lacked this trait. Since the migrant population was basically a Negro population (187 out of 195 were Negro), this finding lends support to the contention that cross cultural studies and within cultural studies

may yield similar findings. However, further research is needed to determine if this contention can be accepted. In order to support this contention, it would be necessary to demonstrate that behaviors that discriminate between cultures also discriminates between successful and unsuccessful individuals within cultures.

It is suggested that if replication of the present study is undertaken, the factor coefficients obtained in the present study for the Pre-Kindergarten Scale again be used. However, if new factor coefficients are to be obtained the factor analysis procedure used in obtaining these coefficients is included in Appendix A with the factor coefficients.

The design of the present study limits the nature of the inferences that can be made. In order to make causal inferences regarding the findings of the present study, it would be necessary to demonstrate that improvement in the child's adjustment in these traits is related to a corresponding improvement in achievement motivation.

Educational Implications

If the present findings are confirmed by future research which supports a causal relationship, then these findings would have important implications for designing educational strategies to use with migrant preschool children. While the sex differences in the traits related to achievement motivation for migrant children has been confirmed using

non-deprived preschool populations (Sears, 1962), few programs for the preschool child have made any systematic attempts to provide for these sex differences. The findings of the present study, for example, indicated that in planning an educational program for the migrant child specific sex differences related to achievement motivation should be taken into consideration. The relationship between risk taking and achievement motivation for the girls suggests that if optimum achievement is desired then girls need to become less inhibited and take more risks. The finding that delay of gratification, self control, and risk taking are components of boys' achievement motivation construct supports Kagan and Moss' (1962) conclusion that impulse control is more important for boys' intellectual achievement than it is for girls.

Thus preschool programs for girls would encourage active interaction with the environment, while preschool programs for boys would encourage the development of impulse control. Programs for both boys and girls would provide experiences that were designed to develop a positive self-concept. Considering the negative influences of the cultural milieu, and the socio-economic class to which the child belongs it will be necessary to use all the information at our disposal to significantly increase the achievement motivation of the disadvantaged child. Preschool programs for disadvantaged children cannot afford to ignore the

motivational differences between boys and girls if they expect to be an effective influence on the child's motivational development.

Summary and Conclusions

The purpose of this study was to determine whether motor inhibition, self control, relationship with achievement model, dependency, self-concept, delay of gratification, and risk taking constitute an achievement motivation construct for migrant preschool children.

The basis for the study was the construct of achievement motivation developed by McClelland and his associates (1953). The theory postulates that the achievement motive is a learned expectation that under certain conditions achievement oriented responses will be reinforced. The theory also describes individuals who possess achievement motivation as having certain traits conducive to achievement, including those listed above.

The subjects used to determine the relationship between the seven traits and achievement motivation consisted of 95 male and 100 female children, who were between the ages of three years, nine months (3-9), and four years, nine months (4-9). These children were attending programs of compensatory preschool education in two south Florida counties. The majority of the children in the study were Negro, with only eight white children.

Two methods of measurement were used: (1) individual tests which were administered by psychometrists, and (2) teachers' and aides' observations recorded on the Pre-Kindergarten Scale. A convergent discriminant validation procedure (Campbell and Fiske, 1959) was used to provide evidence of the validity of the four traits; (cognition, self control, relationship with achievement model, and dependency) which were established from the Pre-Kindergarten Scale through factor analysis. According to this technique, the convergent validities ranged from .53 to .28, while the divergent validities ranged from .00 to .38.

Multiple linear regression analysis was used to examine the relationship between the seven motivational traits and the achievement measure, the Cooperative Preschool Inventory. Separate analyses were conducted for the boys and the girls, with the possibility of a curvilinear relationship tested for each trait.

The analysis of the data was based on the assumption of an additive relationship between motivation and cognition in predicting achievement. Through removal of the achievement variance due to cognition, the remaining variance would essentially be due to achievement motivation. A significant increase in the variance accounted for by a given trait in the prediction of achievement over that accounted for by cognition was construed as support for the inclusion of that trait as a component of the achievement motivation construct.

The additive nature of the relationship was examined in two models. The first model tested the first consequence of the research hypothesis, which stated that if the seven traits constitute the achievement motivation construct in migrant children each trait will independently predict the child's level of achievement when acting in the presence of cognition.

The results indicated that for the girls the traits self-concept and risk taking satisfied this criteria. For the boys, the traits self-concept, motor inhibition, self control, and delay of gratification accounted for a significant percentage of the variance. The second consequence of the research hypothesis stated that if the research hypothesis is correct, then each trait, in the presence of the remaining six motivational traits and cognition, will independently predict achievement. The same traits that satisfied consequence one (for both the boys and the girls) also satisfied the criterion for consequence two of the research hypothesis.

The results of the study support the research procedure of performing separate analysis for each sex. This research indicates that many of the same traits (self-concept, delay of gratification, self control, and motor inhibition) that predict achievement for middle class males also predict achievement for migrant preschool males, and therefore provides support for use of McClelland's et al. (1953)

construct of achievement motivation with a disadvantaged preschool male population.

APPENDICES

APPENDIX A

PRE-KINDERGARTEN SCALE AND

FACTORS COEFFICIENTS

PRE-KINDERGARTEN SCALE

Migrant Education Project
Avant Office Building
201 West Park Avenue - Suite 202
Tallahassee, Florida 32301

Directions

The teacher or aide using this scale should evaluate the first five children on the class roster on Monday, the next five on Tuesday, etc. until all the children in the class have been evaluated Immediately after evaluating the last child mail the answer sheets to Tallahassee in the pre-addressed and stamped envelopes provided for this purpose. In using this scale, the following instructions should be followed.

1. Use a number 2 lead pencil(not a pen) for all work on this scale.
2. Write the child's name in the space provided.
3. Write your name in the space provided. Circle either "T" for teacher, or the "A" for aide.
4. Write the trailer license number in the space provided.
5. Write the child's roster number in the space provided.
6. Write the date the child first entered the class.
7. You should read each question carefully and choose the one of the four descriptions that best fits the child.
8. In marking your responses on the answer sheet, if on question one the number 2 description best fits the child, fill in the second space as shown below.

   1. ---- **--** ---- ---- ----

   If the number 4 description best fits the child fill in the fourth space as shown.

   1. ---- ---- ---- **--** ----

9. If you have not had an opportunity to observe the child carefully enough to answer a question use the last answer "5". Have not observed.

PERSONAL SKILLS

1. When communicating with his teacher, this child:
   1. nearly always expresses a complete thought
   2. usually expresses a complete thought
   3. uses incomplete thoughts
   4. uses gestures only.
   5. Have not observed.

2. In communicating verbally with others, this child usually can be understood by:
   1. his classmates and teachers
   2. his neighbors and close friends
   3. his immediate family only
   4. no one.
   5. Have not observed.

3. When washing for lunch this child:
   1. washes hands and face without help or supervision
   2. washes hands and face but requires supervision
   3. washes hands and face but needs help in finishing
   4. finds it impossible to wash hands and face without extensive help.
   5. Have not observed.

4. In this child's use of the toilet, he:
   1. has satisfactory habits
   2. usually has satisfactory habits but on rare occasions wets or soils self
   3. occasionally wets or soils self
   4. often wets or soils self.
   5. Have not observed.

5. At lunch this child usually eats or tastes:
   1. all of the selections served
   2. most of the selections served
   3. only selections that are also served in his home
   4. only one or two of the selections, or else refuses to eat or taste any of the lunch.
   5. Have not observed.

Relationships With Teacher

6. When receiving needed help from his teacher, this child:
    1. actively responds to the help
    2. bashfully responds to the help
    3. passively receives the help
    4. withdraws from the offered help.
    5. Have not observed.

7. When emotionally or physically upset, this child:
    1. turns to his teacher for comfort and reassurence
    2. accepts and responds to unsolicited comfort and reassurences from the teacher
    3. passively accepts unsolicited comfort and reassurence
    4. resists teacher's attempts at comfort and reassurence.
    5. Have not observed.

8. When engaged in an activity that should not require adult assistance, such as block building, this child:
    1. does not need adult attention
    2. needs adult attention occasionally
    3. needs considerable adult attention
    4. needs constant adult attention.
    5. Have not observed.

9. If this child is involved in a minor accident, such as dropping a toy, he seems to expect from his teacher:
    1. little attention
    2. sympathetic attention
    3. a verbal reprimand
    4. physical punishment.
    5. Have not observed.

10. When you, as this child's teacher are terminating one type of activity and preparing for another, this child:
    1. starts some constructive activity that does not require adult help
    2. waits patiently for the new activity
    3. becomes restless and nervous
    4. requires adult attention.
    5. Have not observed.

Peer Relations

11. When this child is engaged in group activity such as singing, class games, etc., he can usually be observed:
    1. leading the group activity
    2. actively following the group
    3. following the group only after some urging
    4. observing the group without actively participating.
    5. Have not observed.

12. When another child wants to play with one of this child's toys, he:
    1. nearly always offers to share the toy
    2. often offers to share the toy
    3. occasionally offers to share the toy
    4. very rarely offers to share the toy.
    5. Have not observed.

13. If a classmate were punished this child would:
    1. express sympathy
    2. generally not express sympathy
    3. seem to enjoy his classmate's discomfort
    4. verbally express his pleasure in seeing his classmate's punishment.
    5. Have not observed.

14. When this child wants to use an object a classmate is using, he:
    1. asks the classmate's permission to use the object
    2. waits until the classmate is through with the object and takes it without permission
    3. asks his teacher if he may use the object that his classmate is using
    4. occasionally takes object while classmate is using it without asking permission.
    5. Have not observed.

15. During free play, this child:
    1. usually plays with others
    2. occasionally plays with others
    3. usually is satisfied to play by self
    4. usually passively observes play in others.
    5. Have not observed.

Personal Behavior

16. When this child spills something, he:
    1. nearly always begins cleaning up without prompting
    2. occasionally requires prompting to begin cleaning up
    3. begins cleaning up only after prompting
    4. does not attempt to clean up even after prompting.
    5. Have not observed.

17. When engaged in motor activity such as running or climbing, this child:
    1. is always careful to avoid injury
    2. occasionally exposes self to possible injury
    3. frequently exposes self to possible injury
    4. has no regard for personal safety.
    5. Have not observed.

18. When this child is asked if he can do a task that he is capable of, he:
    1. nearly always expects to succeed
    2. expresses some confidence in his ability to do the task
    3. expresses some concern over his ability to do the task
    4. usually expects to fail.
    5. Have not observed.

19. This child's physical energy is generally expressed in:
    1. organized, purposeful games
    2. random, unstructured play
    3. repetitive mechanical movements
    4. wild motor activity to discharge tension.
    5. Have not observed.

20. When exposed to new situations such as field trips, new games, or strangers, etc., this child:
    1. is very curious and asks many questions
    2. shows some curiosity and asks some questions
    3. has limited curiosity which is easily satisfied
    4. shows no curiosity.
    5. Have not observed.

Cognitive Skills

21. When this child is asked to repeat what his teacher said, he:
    1. can repeat complete sentences
    2. can repeat most words
    3. can repeat most sounds
    4. has much difficulty repeating sounds or words.
    5. Have not observed.

22. When this child is asked his name and address, he:
    1. gives both full name and address
    2. gives full name
    3. gives first name only
    4. cannot give either name or address.
    5. Have not observed.

23. When this child needs to use the toilet, he:
    1. uses complete sentences to express need
    2. uses phrases to express need
    3. uses limited speech but does not specifically mention need
    4. uses gestures to communicate need.
    5. Have not observed.

24. When this child is given a picture, he:
    1. can use actions in the picture to recite a story
    2. can relate articles in the picture to action, but is unable to connect actions into a story
    3. can name articles and people in pictures but cannot specify the actions
    4. cannot name articles in the picture.
    5. Have not observed.

25. When this child is given instructions on how to perform a task, he has:
    1. little difficulty in following the instructions
    2. some difficulty, but he does not require assistance
    3. difficulty, in that he requires some assistance from others to finish the task
    4. such difficulty that he cannot complete the task even with assistar
    5. Have not observed.

FACTOR SCORE COEFFICIENTS FOR PRE-KINDERGARTEN SCALE (N=144)*

Variable	Cognition	Self Control	Dependency	Relationship with Achievement Model
1	.054	-.113	.250	.020
2	-.033	-.058	.262	-.017
3	-.116	.046	.333	-.052
4	-.058	.006	.339	-.120
5	-.080	-.222	.094	.277
6	-.091	.014	-.100	.342
7	-.078	.065	-.149	.261
8	-.051	.073	.164	.053
9	-.112	.068	-.005	.202
10	-.097	.211	.088	-.016
11	.063	-.042	.014	.165
12	-.035	.282	-.152	.071
13	.035	.189	-.046	-.046
14	-.039	.295	-.097	-.016
15	-.015	-.084	-.022	.265
16	.007	.048	.046	.104
17	-.082	.227	.144	-.072
18	.068	.030	-.011	.101
19	-.011	.222	.088	-.116
20	.130	-.121	-.061	.173
21	.185	-.087	.075	-.003
22	.338	-.003	-.191	-.129
23	.192	-.088	.099	-.059
24	.246	-.000	-.041	-.076
25	.296	.058	-.103	-.159

*A principal components factor analysis with orthogonal rotations and with no iterations was the approach used to obtain these coefficients.

APPENDIX B

MEANS AND STANDARD DEVIATIONS

LISTING OF MEANS AND STANDARD DEVIATIONS FOR MALE, AND FEMALE MIGRANT PRESCHOOL CHILDREN

	Male (N=95)		Female (N=100)	
	Mean	Standard Deviation	Mean	Standard Deviation
Cognition	8.51	1.18	8.73	1.04
Motor Inhibition	14.73	9.91	13.78	8.22
Self Control	9.72	.83	10.17	.60
Relationship with Achievement Model	9.89	.60	10.15	.54
Dependency	9.97	.81	10.04	.70
Self-Concept	9.29	3.23	9.56	3.05
Delay of Gratification	.47	.50	.61	.48
Risk Taking	1.66	.59	1.78	.49
CPI	33.58	12.64	35.75	10.85

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